INFORMATION REPORT INFORMATION REPORT

CENTRAL INTELLIGENCE AGENCY

25X1

COUNTRY East Germany

REPORT

SUBJECT Transistor and Semiconductor Development in East Germany

DATE DISTR. 14 December 1955 25X1

NO. PAGES 2

REQUIREMENT NO. 25X1

REFERENCES 25X1

DATE OF INFO.

PLACE ACQUIRED This is UNEVALUATED Information

SOURCE EVALUATIONS ARE DEFINITIVE. APPRAISAL OF CONTENT IS TENTATIVE.

The conference took place at Werk fuer Fernmeldewesen (WF), Berlin-Oberschoeneweide, under the chairmanship of Dr. Matthias Falter, and discussed the technical developments of semiconductors, transistors and of diodes. 25X1

1. The general trend in the development of transistors is toward surface barrier transistors (Flaechentransistoren), both in East Germany and in other countries. VEB Werk fuer Bauelemente der Nachrichtentechnik "Carl von Ossietzky"(WBN), Teltow, which is working on such transistors now, is responsible for having prototypes ready to turn over to industry by the end of 1955. The approximate technical data on these transistors are as follows: 25X1

Frequency	: 100 to 200 kcs
α (current multiplication factor)	: 0.93 to 0.99
Output	: 200 milliwatts

2. Despite the general trend toward the development of Flaechentransistoren, the manufacture of Spitzentransistoren[1] is still continued, however, mostly for special purposes. The transistors produced in East Germany have about the same specifications as those made in other countries.

3. WF is now working on Duennschichttransistoren[2] with the aim of developing a high-frequency transistor for up to 30 megacycles in 1955.

4. The development of semiconductors is still in its infancy in East Germany compared to [redacted] where considerable means have been invested. It will therefore be necessary to appropriate a substantial amount of money in order to keep up with the technical progress of other countries in this field. Keeping pace [redacted] cannot be done because of limited finances and limited trained personnel in East Germany. In order to prevent a further widening of the technological gap between East Germany [redacted] the developmental work will have to be increased to a large extent. By the end of the second Five-Year Plan, developmental work should be four 25X1 25X1 25X1 25X1 25X1

SECRET [redacted] 25X1

STATE	#	x	ARMY	#	x	NAVY	#	x	AIR	#	x	FBI		AEC		OSI Ev	x		

[redacted] 25X1

(Note: Washington distribution indicated by "X"; Field distribution by "#".)

INFORMATION REPORT INFORMATION REPORT

to five times that of the present rate. The use of semiconductors will bring about considerable improvement and diminution in components and the apparatus of which they become a part.

6. The following development projects have been set for the period 1956 to 1960:

a. Construction of surface rectifiers (Flaechengleichrichter) with an output of up to several kilowatts and inverse voltage of up to several hundred volts.

b. Construction of power transistors (Leistungstransistoren) with a capacity of several watts.

c. Construction of high-frequency transistors with a frequency limit of up to several megacycles.

d. Extension of Spitzentransistoren[1] from triodes to tetrodes and to pentodes.

e. Supply of electric current to equipment operated by transistors.

(1) Construction of a thermopile made of intermetallic semiconductors with an efficiency of from 5 percent to 7 percent.

(2) Construction of a solar battery which exploits directly solar energy through photoelectric elements made of semiconductors with an efficiency of from 5 percent to 6 percent.

(3) Construction of an atomic battery consisting of a small amount of synthetic radioactive substances and a semiconductor to supply current to a transistor.

f. Construction of a resistive semiconductor:

(1) To regulate electric current and power output to be used in various fields of application;

(2) To be used as measuring apparatus for high-frequency engineering;

(3) To be used as thermostats, etc.

g. For the period 1956 to 1960 an amount of 10,000,000 DME will be needed for the development of semiconductors which would amount to at least 2,000,000 DME for each year of the Five-Year Plan. The main effort, however, will be made within the next two or three years. The appropriation of an equal amount assigned to the construction of new plants and to air conditioning equipment will be necessary in order to keep up with the technical progress in other countries. The apparatus and applicance industries require further development of components containing semiconductors to a point where they can be mass-produced.

[redacted] Comments:

25X1

1. Point-contact transistors or type A transistors.

2. Possibly junction-type transistors; literally, thin layer transistors.

[redacted]

25X1

[redacted]

25X1